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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,979	02/17/2004	Zeno Wahl	AA 021112	9102
23662	7590	06/28/2005	EXAMINER	
ROBERT M. MCDERMOTT, ESQ. 1824 FEDERAL FARM ROAD MONTROSS, VA 22520			NGUYEN, MINH T	
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EJC

**Office Action Summary****Application No.**

10/779,979

**Applicant(s)**

WAHL, ZENO

**Examiner**

Minh Nguyen

**Art Unit**

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/17/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because (i) it has more than 150 words, (ii) it uses words which can be implied, i.e., "is provided". Correction is required.

See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 6-11, 13, 17 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,353,311, issued to Hirata et al.

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As per claim 1, Hirata discloses an oscillator (figure 1) comprising:

a direct digital synthesizer (DDS 1) that provides a controlled frequency output (the frequency hopping signal S3),

a phase-locked-loop (PLL 2), operably coupled to the DDS (the PLL2 receives the frequency hopping signal S3), that is configured to provide a tracked frequency output (the tracked frequency output signal S4) based on the controlled frequency output (S3) and a first scale factor (the scale factor of divider 24),

a scaling synthesizer (PLL 3), operably coupled to the PLL (the PLL 3 receives the tracked frequency output S4), that is configured to provide an oscillator output (the oscillating signal S5) based on the tracked frequency output (S4) and a second scale factor (the scale factor of divider 35).

As per claim 3, the recited limitation reads on the PLL 3 as discussed in claim 1.

As per claim 6, the Hirata's DDS 1 which is a NCO is shown in figure 1 and described in column 3, lines 4-31. The accumulator 11 and ROM 12 perform the recited function.

As per claim 7, the recited low pass filter reads on the LPF 14.

As per claim 8, this claim is merely a method to operate the oscillator discussed in claim 1. Since Hirata teaches the structure, the method to operate is seen as inherently disclosed.

As per claim 9, the recited step is performed by the direct digital synthesizer DDS 1.

As per claim 10, this claim is rejected for the same reason noted in claim 3.

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As per claim 11, this claim is rejected for the same reasons noted in claim 1.

Further, the recited controller reads on the circuit which provides control parameters to nodes 101, 102 and 104.

As per claim 13, this claim is rejected for the same reason noted in claim 3.

As per claim 17, the recited limitation is disclosed in the title.

As per claim 22, this claim is rejected for the same reason noted in claim 6.

3. Claims 1, 3, 6-11, 13 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,757,239, issued to Gilmore

As per claim 1, Gilmore discloses an oscillator (figure 2) comprising:

a direct digital synthesizer (DDS 204) that provides a controlled frequency output (at the output of the DDS 204),

a phase-locked-loop (PLL 214), operably coupled to the DDS (the PLL2 receives the signal from the DDS 204), that is configured to provide a tracked frequency output (at the output of the PLL 214) based on the controlled frequency output (as shown) and a first scale factor (the scale factor of the loop divider inside the PLL 214, column 7, lines 8-20),

a scaling synthesizer (PLL 220), operably coupled to the PLL (the PLL 220 receives the signal from the PLL 214), that is configured to provide an oscillator output (the oscillating signal OUTPUT) based on the tracked frequency output and a second scale factor (the scale factor of the loop divider inside the PLL 220, see figure 1, element 122).

As per claim 3, the recited limitation reads on the PLL 220 discussed in claim 1.

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As per claim 6, the Gilmore's DDS which is a NCO is shown in figure 1 and described in column 4, lines 50-64. The accumulator 104 and ROM 106 perform the recited function.

As per claim 7, the recited low pass filter reads on the LPF 208.

As per claim 8, this claim is merely a method to operate the oscillator discussed in claim 1. Since Gilmore teaches the structure, the method to operate is seen as inherently disclosed.

As per claim 9, the recited step is performed by the direct digital synthesis DDS 204.

As per claim 10, this claim is rejected for the same reason noted in claim 3.

As per claim 11, this claim is rejected for the same reasons noted in claim 1.

Further, the recited controller reads on the circuit which provides control parameters to lines 212, 216 and 222.

As per claim 13, this claim is rejected for the same reason noted in claim 3.

As per claim 22, this claim is rejected for the same reason noted in claim 6.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4-5, 12 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,353,311, issued to Hirata et al.

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As per claim 2, Hirata discloses an oscillator having a structure as discussed in claim 1 herein above wherein the PLL includes a VCO 23 as shown in figure 1.

Hirata does not explicitly disclose the VCO 23 is implemented using crystal as called for in the claim.

However, it is well-known in the art that oscillator using crystal provides highly stable frequency, and therefore, suitable for an application which requires a high degree of accuracy of the output signal.

It would have been obvious to one skilled in the art at the time of the invention was made to use crystal to implement the Hirata's VCO 23.

The motivation and/or suggestion would be to improve the accuracy of the Hirata's transmitter which is a desired feature when accuracy is considered more important than the cost.

As per claim 4, Hirata discloses an oscillator having a structure as discussed in claim 1 herein above wherein the controlled frequency is in a predetermined frequency band (column 2, line 60, "VHF band") but he does not explicitly disclose the frequency band is determined based on the characteristics of the DDS to minimize unwanted phase modulation as called for in the claim.

However, as held by the court, when a general condition is met, varying the range of a parameter to obtain optimum condition is not patentable because it is within the level of an average person skilled in the art. In this instant case, Hirata teaches the structure as discussed in claim 1 with the DDS outputting a controlled frequency signal within a predetermined frequency band (the general condition is met), determining a specific

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frequency band in a certain environment to minimize the unwanted phase modulation to obtain an optimum condition is well within the level of one skilled in the art.

It would have been obvious to one skilled in the art at the time of the invention was made to select a frequency band for the Hirata DDS which minimize the unwanted phase modulation. The motivation and/or suggestion would be to improve the accuracy of the controlled frequency output from the DDS.

As per claim 5, this claim is rejected for the same reason and motivation discussed in claim 4.

As per claim 12, this claim is rejected for the same reason and motivation discussed in claim 2.

As per claim 18, Hirata discloses the system as discussed in claim 17 but he does not explicitly disclose the control parameters are provided based on a velocity of a receiver of the input signal as called for in the claim.

However, it is obvious that a signal which is transmitted over the air is affected by Doppler effect, and in order to provide a reliable working system, this factor must be taken into account.

It would have been obvious to one skilled in the art at the time of the invention was made to include the control parameter of the velocity of the receiver of the input signal. The motivation and/or suggestion would be to ensure the system would not be malfunctioned caused by the Doppler effect.

As per claim 19, Hirata discloses the system as discussed in claim 11 but he does not explicitly disclose the control parameters are provided based on the input modulation signal as called for in the claim.



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However, it is obvious that a signal which is transmitted over the air is affected by input modulation signal, and in order to provide reliable working system, this factor must be taken into account.

It would have been obvious to one skilled in the art at the time of the invention was made to include the control parameter to ensure the input modulation signal. The motivation and/or suggestion would be to ensure the system would not be malfunctioned caused by the uncontrolled input modulation signal.

As per claims 20-21, these claims are rejected for the same reasons noted in claims 4-5, respectively.

5. Claims 14-16 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,757,239, issued to Gilmore in view of US Patent No. 5,375,146, issued to Chalmers.

As per claim 14, Gilmore discloses an oscillator using a DDS and PLLs for generating highly accurate periodic signal but he does not explicitly disclose the use of such an oscillator in a receiver system to mix the incoming data with the local periodic signal using a mixer.

Chalmers discloses that it is well-known in the art that receiver system (figure 1) needs highly stable oscillator (the oscillator 130) to mix with incoming data signal from the antenna in order to reliably reproducing the data signal (the rest of the elements in figure 1 of Chalmers perform the mixing and demodulating functions).

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It would have been obvious to one skilled in the art at the time of the invention was made to use the Gilmore's oscillator as a highly stable oscillator in the Chalmers' prior art receiver system so that the incoming data signal can be reliably reproduced.

As per claim 15, this claim is rejected for the same reason noted in claim 14, the recited demodulator reads on the demodulator 150.

As per claim 16, the system discussed in claim 15 does not explicitly disclose the control parameters are provided based on a velocity of a receiver of the input signal as called for in the claim.

However, it is obvious that a signal which is transmitted over the air is affected by Doppler effect, and in order to provide a working system, this factor must be taken into account.

It would have been obvious to one skilled in the art at the time of the invention was made to include the control parameter of the velocity of the receiver of the input signal. The motivation and/or suggestion would be to ensure the system would not be malfunctioned caused by the Doppler effect.

As per claim 23-24, the system discussed in claim 14 does not explicitly disclose the specific frequency of the oscillation signal which is at least 1 GHz and the frequency is controllable with a resolution of less than ten hertz as called for in claim 23 or the range of the controlled frequency output is in order of kilohertz and the range of the oscillation signal is in an order of hundreds of kilohertz as called for in claim 24.

However, as held by the court, when a general condition is met, varying the range of a parameter to obtain optimum condition is not patentable because it is within the level of an average person skilled in the art.

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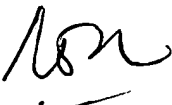
It would have been obvious to one skilled in the art at the time of the invention was made to select the oscillation signal which is at least 1 GHz and the frequency is controllable with a resolution of less than ten hertz as called for in claim 23 or the range of the controlled frequency output is in order of kilohertz and the range of the oscillation signal is in an order of hundreds of kilohertz as called for in claim 24.

The motivation and/or suggestion would be to ensure that the system discussed in claim 14 can be used in applications which require such specific ranges.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Nguyen whose telephone number is **571-272-1748**. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 6/24/05

Minh Nguyen  
Primary Examiner  
Art Unit 2816